

## عنوان مقاله:

Synthesis of Lead Titanate Nanostructure by Mechanical Activation Method and Evaluating of its Photocatalytic Decolorization of Methyl orange

## محل انتشار:

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## خلاصه مقاله:

In this study, lead titanate nanopowder was synthesized using mechanical activation. Raw materials including titanium oxide powder (anatase) and Lead oxide (II) with a ball to powder weight ratio of 1: 10 and the powder ratio of 1:1 were milled in a planetary ball mill for 30 hours. Then, they were heated at 800, 900 and 1000 °C. The volatility of lead and the formation of secondary phases were prevented using this method. The obtained nanopowder was investigated by field emission scanning electron microscope (FESEM), X-ray diffraction (XRD), and Fourier transform infrared spectroscopy (FTIR). The UV absorption spectroscopy was used to calculate the energy gap. Photocatalytic activity of nanopowder by dye degradation of methyl orange under UV light was evaluated. The effects of various influential parameters including initial dye concentration, photocatalyst dose and pH on the dye decolorization were also investigated. The optimum value for initial dye concentration and photocatalyst dose, obtained 10 ppm and 0.042 g, respectively. Also, the best rate of decolorization observed at pH=4. The results suggested that photocatalytic process .is a beneficial method for decolorizing methyl orange dye

## کلمات کلیدی:

Lead Titanate Nanopowder, Mechanical activation, Photocatalyst, Methyl Orange

## لینک ثابت مقاله در پایگاه سیویلیکا:

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