



Synthesis Beads Photocatalyst $\text{TiO}_2/\text{N-zeolite}$ /chitosan to photodegradation Methylene Blue with Sunlight

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Abstract : The purpose of this study was to synthesize a photocatalyst to form a ball making it easy to reuse activity is still high. Photocatalyst which has been synthesized then performed to characterize and test activities on various parameters include the concentration of methylene blue, while irradiation, the effect of pH methylene blue and reuse photocatalyst. Characterization is done by using FTIR, SEM and UV-Vis spectrometer Diffuse Reflectance. The concentration of methylene blue test is 10-25 ppm, long irradiation with sunlight 1-5 hours. Based on an analysis by FTIR, the N atom in TiO_2 is shown in wave numbers from 1520 to 1570 cm^{-1} . The results of the analysis with Diffuse Reflectance Spectroscopy is the energy band gap of TiO_2 , TiO_2N , $\text{TiO}_2\text{N/zeolite}$, and $\text{TiO}_2\text{N/zeolite-chitosan}$ respectively are 3.28; 3.09; 3.3; 3.25 eV. The specific surface area of zeolite, zeolite activation, TiO_2 , TiO_2N , $\text{TiO}_2\text{N/zeolite}$, and $\text{TiO}_2\text{N/zeolite-chitosan}$ is determined by the surface area analyzer with successive BET method was 224.233; 251.686; 119.42; 273.997; and 306.275 m^2/g . Based on the research showed that the concentration of MB is the effect on the degradation rate constant. Constant rate of degradation is increasing at a concentration of methylene blue from 10, 15 and 20 mg/L. The highest rate constant was 0.5198 h^{-1} , these constants is generated from MB 20mg/L.

Keywords : photocatalyst; methylene blue; $\text{TiO}_2/\text{N-zeolite}$; sunlight.

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