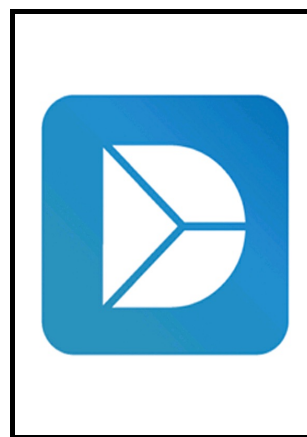


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Data article**Photocatalytic degradation data of benzene and toluene by ZnO coated on glass plates under simulated sunlight**

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Abstract

For this data article the photocatalytic oxidation of benzene and toluene by ZnO nanoparticles coated on glass plates were studied under simulated sunlight. ZnO nanoparticles were coated on three glass plates by heat attachment methods. To evaluate the photocatalytic removal of benzene and toluene, coated plates irradiated by metal halide lamp in a rectangular reactor in batch mode. The effect of initial pollutants concentration, temperature, relative humidity, irradiation time, concentration of zinc oxide suspension, were assessed. The surface morphology and structure of ZnO nanoparticles and ZnO coated on glass plates were characterized by scanning electron microscopy, X-ray diffraction and Field Emission Scanning Electron Microscopy. Sampling and analysis of pollutants were performed according to the National Institute for Occupational Safety and Health (NIOSH) method. To analyze the concentration of benzene and toluene, gas chromatography with flame ionization detector (GC-FID) was used. The data results indicated that photocatalytic process by ZnO under irradiation of metal halide lamp could remove benzene and toluene at optimum experimental conditions. Coating of glass surfaces by ZnO suspension, resulted in 46% and 57% removal of benzene and toluene as concentration of 50 ppm at 45 °C, and relative humidity of 40% after 240 min irradiation of metal halide lamp.

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