

Removal of Phenol by Zeolite

Abstract

The adsorption of phenol by Zeolite was investigated to assess its possible use as an adsorbent. The adsorbent properties were tested on batch solutions containing minimum concentration of 3mM (282 ppm) and a maximum of 7mM (658ppm) phenol, at fixed temperature of 30°C without pH adjustment. The effect of the adsorbent dose, contact time and initial phenol concentration on the removal degree of phenol was investigated. Effect of the adsorbent dosages for the removal of phenol was carried out using adsorbent dosages ranging from 5g to 25g. After hours of adsorption, this experiment reveals that the phenol removal performance is varied based on the three parameters investigated. For IPC 3mM, 5mM and 7mM; 25g, 15g, 5g is considered as the optimum dosage with phenol removal of 49%, 67% and 68% respectively. The equilibrium sorption data was better explained by Langmuir isotherm model suggesting that the adsorption of phenol observed monolayer sorption pattern.