

STUDY OF THE ELIMINATION OF PHENOL BY ADSORPTION ON AN ALGERIAN DIATOMITE

A. BALASKA, H. MERADI, R. AYACHE, M. SELAMETTE, M-H. SAMAR, L. ATOUI, M. ABBASSI

Abstract : The phenol and its derivatives are compounds which are found in several types of industrial wastewater such as: rejections of painting, paper, plastics, oil and gasoline, steel, the textile, pharmaceutical industry and the wood industry. They are toxic for the man and for and the other aquatic environments; of which, a small concentration of phenol in the medium (2.5 mg/l) causes an unpleasant odor of drinking water. In this study, we used the diatomite of the deposit of Sig (west of Algeria) like an adsorbent to eliminate this type of organic pollution. The several techniques were used to characterize this material and explain the morphology and the composition of this powder. The porous structure of the raw diatomite is clearly observed in the MEB, the diffraction of X-rays presents more than 80% of amorphous state and the analysis by FRX shows that the powder contains more than silica 65 %. The adsorption of phenol was carried out on the raw diatomite and modified by chemical activation; we were used the sulphuric acid 5 mol/l. The kinetics and the isotherms of adsorption were established for the two adsorbents. The influence of some parameters such as the pH of the medium and the initial concentration of the pollutant on the process of adsorption was also evaluated.

Keywords : Phenol, diatomite, characterization, adsorption