World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:11, No:03, 2017

Adsorption of Phenol and 4-Hydroxybenzoic Acid onto Functional Materials

Authors : Mourad Makhlouf, Omar Bouchher, Messabih Sidi Mohamed, Benrachedi Khaled

Abstract : The objective of this study was to investigate the removal of two organic pollutants; 4-hydroxybenzoic acid (p-hydroxybenzoic acid) and phenol from synthetic wastewater by the adsorption on mesoporous materials. In this context, the aim of this work is to study the adsorption of organic compounds phenol and 4AHB on MCM-41 and FSM-16 non-grafted (NG) and other grafted (G) by trimethylchlorosilane (TMCS). The results of phenol and 4AHB adsorption in aqueous solution show that the adsorption capacity tends to increase after grafting in relation to the increase in hydrophobicity. The materials are distinguished by a higher adsorption capacity to the other NG materials. The difference in the phenol is 14.43% (MCM-41), 14.55% (FSM-16), and 16.72% (MCM-41), 13.57% (FSM-16) in the 4AHB. Our adsorption results show that the grafted materials by TMCS are good adsorbent at 25 °C.

Keywords : MCM-41, FSM-16, TMCS, phenol, 4AHB
Conference Title : ICC 2017 : International Conference on Chemistry
Conference Location : Paris, France
Conference Dates : March 29-30, 2017