The Adsorption Characteristics of n-Butane/1-Butene on Mesoporous MCM-41

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New Adsorbents were prepared and tested for the separation of n-butane/1-butene mixtures by adsorption. Equilibrium adsorption isotherms and fixed bed adsorptions using different π-complexation adsorbents for n-butane/1-butene separation have been measured on mesoporous materials which are controlled pore size distribution, pore wall thickness, pore connectivity and micropore volume. The ordered mesoporous materials were used as the starting materials for Cu (I), Cu(II), Ag(I) and Fe(II) incorporation for π-complexation with olefin. Adsorption behaviors have suggested that a higher affinity of framework on mesoporous materials for olefin over corresponding paraffin, which has been examined in terms of the texrural characteristics of mesoporous material. Therefore, mesoporous materials seem to be a promising adsorbent for separation of n-butane/1-butene.