

Heterogeneous Adsorption of Benzene, Toluene, and Xylene on Carbon Nanotubes

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SWCNT and DWCNT were characterized by nitrogen adsorption/desorption isotherm, SEM, TEM, and Raman Spectroscopy. The equilibrium data of VOCs (Benzene, Toluene and m-Xylene) on SWCNT and DWCNT were measured at three different temperatures (303.15, 313.15 and 323.15 K) with pressures up to saturated pressure. The nitrogen and VOC isotherms exhibit type II and type I, respectively. The isotherm data were well fitted by Toth. The isosteric heat of adsorption was calculated by Clausius-Clayperon equation. In addition, adsorption energy distribution functions were evaluated by generalized nonlinear regularization method. We found that SWCNT and DWCNT have energetically and structurally heterogeneous surfaces.