## عنوان مقاله:

Equilibria and Kinetics of Carbon Dioxide Adsorption on Multiwalled Carbon Nanotube and Activated Carbon

## محل انتشار:

چهاردهمین کنگره ملی مهندسی شیمی ایران (سال: 1391)

تعداد صفحات اصل مقاله: 5

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## خلاصه مقاله:

In this study, the equilibrium adsorption of CO2 on activated carbon (AC) and multi-walled carbon nanotube (MWCNT) were investigated. Experiments were performed at temperature range of 293–313 K and pressures upto 40 bars. The obtained results indicated that the equilibrium uptakes of CO2 by both adsorbents increased withincreasing pressure and decreasing temperaturet .Maximum amount of CO2 uptake achieved by MWCNT at 293K and 40 bars were10.82 mmol/g. The higher CO2 captured by MWCNT can be attributed to its higher pore volume and specific structure of MWCNT such as hollowness and light mass off CNT into AC. Theexperimental data were analyzed by means of Freundlich and Langmuir adsorption isotherm models as more common and practical models in gas adsorption. Small values of isosteric heat of adsorption were evaluated based on Clausius–Clapeyron equation showed the physical nature of CO2 adsorption mechanism . The high amount of CO2 capture by MWCNT surrender it as a promising carrier for practical applications such as gas separation and gas storage

## کلمات کلیدی:

Adsorption, CO2, MWCNT, AC, Adsorption isotherms, Isosteric heat