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Dependence of single-walled carbon nanotubes' adsorption kinetics on temperature and binding energy VAIVA KRUNGLEVICIUTE, DINESH RAWAT, MURAT BULUT, LUKE HEROUX, ALDO MIGONE, Southern Illinois University Carbondale — We present adsorption kinetics results for hydrogen, freon and ethane on single walled carbon nanotubes. We measured the decrease of the pressure as a function of time as equilibrium is approached. Our results indicate that the equilibration time is a function of $\frac{\varepsilon}{T}$; where ε is the binding energy of adsorbate and T is the isotherm temperature. We also compare the dependence of the equilibration time on the shape of the adsorbate. We found that for linear molecules the equilibration times decrease with increasing coverage at a much slower rate than those times for spherical molecules.

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