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Study of Butane adsorption on Purified HiPco Carbon Nanotubes[1] TOYO FURUHASHI, DINESH RAWAT, ALDO MIGONE, Southern Illinois University, Carbondale, IL-62901 — We investigated the adsorption characteristics of butane on purified HiPco single-walled carbon nanotubes for coverages in the first layer. We measured 9 full isotherms between 180 and 260K. The results for butane are compared with those obtained in a previous study of ethane adsorption on the same substrate. Comparable values for the specific surface area of the substrate were found when this quantity was measured using either ethane or butane. This strongly suggests that both of these species have access to essentially the same adsorption sites. We also determined that the strength of binding of the hydrocarbon chains to the SWNT bundles correlates, roughly linearly, with molecular length. An increase in chain length provides a greater number of contacts between sites on the substrate and the adsorbate species, thus, resulting in an increase in the values of the binding energies.

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