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[54] **GAS STORAGE CARBON WITH ENHANCED THERMAL CONDUCTIVITY**

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[52] **U.S. Cl.** **428/293.4**; 428/297.4; 428/299.1; 428/300.4; 428/408; 428/304.4; 428/312.2; 428/293.7; 428/367; 264/29.1; 264/29.6; 264/29.7; 95/114

[58] **Field of Search** 428/293.4, 297.4, 428/299.1, 300.4, 408, 304.4, 312.2, 293.7, 367; 95/114; 264/29.6, 29.1, 29.7

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[57] **ABSTRACT**

A carbon fiber carbon matrix hybrid adsorbent monolith with enhanced thermal conductivity for storing and releasing gas through adsorption and desorption is disclosed. The heat of adsorption of the gas species being adsorbed is sufficiently large to cause hybrid monolith heating during adsorption and hybrid monolith cooling during desorption which significantly reduces the storage capacity of the hybrid monolith, or efficiency and economics of a gas separation process. The extent of this phenomenon depends, to a large extent, on the thermal conductivity of the adsorbent hybrid monolith. This invention is a hybrid version of a carbon fiber monolith, which offers significant enhancements to thermal conductivity and potential for improved gas separation and storage systems.

1 Claim, 3 Drawing Sheets