

Title:

Activated Carbon Pore Expansion using Acidic Hydrothermal Method

Authors:

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Abstract:

Petroleum Coke is a widely abundant, high carbon content material produced as a byproduct of the oil refining process. Its abundance makes the price per ton low and it is produced in almost all regions of the world. Due to the low price and high carbon percentage, commercial companies make large amounts of activated carbon using petroleum coke as a precursor. These activated carbons are characterized by their high surface area and can achieve widely varying pore morphology with different activation processes. The goal of this work is to achieve a homologous mesopore activated carbon material for use in super capacitor and catalysis applications using commercial activated carbon. Using a mixture of nitric acid and sulfuric acid, the mostly microporous (pores of diameter less than 2nm) petroleum coke derived activated carbon are etched away to make meso-pores (diameter between 2nm and 50nm).

Keywords:

Activated Carbon, Petroleum Coke, Supercapacitor, Porous Materials