Activated Carbons Prepared from Date Pits for Hydrogen Storage

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Abstract : In this study, activated carbons were prepared from Algerian date pits using thermal activation with CO2 or steam. The prepared activated carbons were doped by vanadium oxide in order to increase the H2 adsorption capacity. The adsorbents were characterized by N2 and CO2 adsorption at 77 K and 273K, respectively. The hydrogen adsorption experiments were carried at 298K in the 0-100 bar pressure range using a volumetric equipment. The results show that the H2 adsorption capacity is influenced by the size and volume of micropores in the activated carbon adsorbent. Furthermore, vanadium doping of activated carbons has a slight positive effect on H2 storage.

Keywords : hydrogen storage, activated carbon, vanadium doping, adsorption

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