

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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