

Electrochemical and structural characteristics of phenol-based activated carbon by KOH activation

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Phenol-based activated carbons (ACs) were prepared by vulcanization, carbonization and chemical activation for evaluating electrochemical performance. KOH was used as an activation agent at different concentrations (0, 2, 4, and 6 M) to investigate the effects of activation. The textural properties of activated phenol-based ACs were investigated specific surface area and pore size distribution by N₂ adsorption. The electrochemical properties of samples were evaluated using cyclic voltammetry performed in a potential range of 0–1 V at different scan rates in 1 M H₂SO₄ electrolyte. The specific capacitance remarkably increased with increasing the concentration of KOH, which is attributable to increase of specific surface area and mesopore volume values.