

carbon on phenol was exothermic and entropy decreasing process according to the $\Delta H < 0$, $\Delta S < 0$ under the concentration of 2g/L.

4. CONCLUSIONS

(1) Porous carbon materials with high specific surface areas were prepared by a combined method of microwave drying, carbonization and activation processes, in which Chinese herb residue was used as carbon source, and KOH was used as activator, respectively. Chinese herb residues were carbonized for 2h at 380°C. Porous carbon materials were prepared under the carbon/KOH ratio 1:4 at 750 °C which possessed specific surface areas of 2079. 25m²/g, the mesoporous ratio of 79. 10%.

(2) when carbon/KOH ratio was 1:3, the activation reaction made the material surface contain some mesoporous. Reaction speed increased with the increasing of the amount of KOH, which resulted in the surface of the materials possessed more pore structure. The specific surface areas was the largest when the carbon/KOH ratio was 1:4. Continue to increase the proportion of KOH, the microporous and mesoporous will be excessive ablated, which resulted in decreasing of the specific surface areas.

(3) When carbon/KOH ratio was 4:1, the saturated adsorption capacity of the porous carbon was 187. 5 mg/g. The linear correlation coefficient was 0. 99 of adsorption isotherms. The adsorption process conformed to the Langmuir model, which showed that the adsorption of porous carbon materials on phenol was monolayer adsorption. The adsorption of porous carbon on phenol was physical adsorption on the surface. The adsorption behavior was exothermic and entropy decreasing process.

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