

Research Title

Gas Adsorption on Activated Carbon
at Low Temperature (80-200K)

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Abstract

This research has studied about gas-adsorption on activated carbon by passing sample gases through the activated carbon at low temperature (80 - 200 K) and detect gas-adsorption signals from the TCD (Thermal Conductivity Detector). These sample gases are argon , oxygen , nitrogen and carbon dioxide. Found that the quantity of gas-adsorption depend on temperature of activated carbon and physical property of gas. At low temperature (80 - 90 K), gas will be more adsorped than high temperature. But in this case of carbon dioxide adsorption with activated carbon , it can't be deteced the response signal from the detector.

To calculate the surface of gas-adsorption of argon , oxygen , and nitrogen on activated carbon at 90 K , according to BET theorem , the existance value are $4280 \text{ m}^2 \text{ g}^{-1}$, $2456 \text{ m}^2 \text{ g}^{-1}$ and $68 \text{ m}^2 \text{ g}^{-1}$ respectively. And the surface of gas-adsorption of nitrogen on activated carbon at liquid nitrogen temperature is $1343 \text{ m}^2 \text{ g}^{-1}$