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Carbon Dioxide Capture in NaOH-Impregnated Activated Carbon

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Carbon dioxide (CO₂) adsorption at high pressures by alkali-impregnated activated carbons were studied in this presentation. Four types of activated carbon were prepared with two-step activation method and activation combined with oxidation method [1] and then impregnated in different concentration of alkali solution of 1, 4, 7 and 10%. The results of CO₂ adsorption at 0°C up to saturated pressure show that the maximum adsorption capacity was obtained from the activated carbon prepared by activation combined with oxidation method with 180 minutes of total activation time, two cycles for oxidation and 1% NaOH impregnation. The BET surface area of all activated carbons decreased with an increase in NaOH loading. Micropore volume of all activated carbons is maximum when impregnated with 1% NaOH. It is seemed that the impregnation with appropriate NaOH loading can develop some micropore on activated carbon surface and lead to an increase in micropore volume.

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