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吸附分离CH<sub>4</sub>/N<sub>2</sub>可行性研究

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**摘要** The separation between methane and nitrogen is an inevitable and important task in the C1 chemical technology and the utilization of methane from coalbed, yet it is considered to be one of the tough tasks in the field of separation. Pressure swing adsorption is a preferable technology if an adsorbent that allowing a large coefficient of separation for the CH<sub>4</sub>/N<sub>2</sub> system is available. The separation coefficients between CH<sub>4</sub> and N<sub>2</sub> were obtained on analyzing the breakthrough curves measured experimentally with nine adsorbents. A technique of measuring the temperature-pulse was incorporated in the experiments, and the reliability of the result was improved. Superactivated carbon with large surface area and plenty of micropores was shown to have the largest separation coefficient and to be promising for the commercial utilization.

**关键词** [separation](#) [nitrogen and methane](#) [pressure swing adsorption](#)

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**A Feasibility Study of Separating CH<sub>4</sub>/N<sub>2</sub> by Adsorption**

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**Abstract** The separation between methane and nitrogen is an inevitable and important task in the C1 chemical technology and the utilization of methane from coalbed, yet it is considered to be one of the tough tasks in the field of separation. Pressure swing adsorption is a preferable technology if an adsorbent that allowing a large coefficient of separation for the CH<sub>4</sub>/N<sub>2</sub> system is available. The separation coefficients between CH<sub>4</sub> and N<sub>2</sub> were obtained on analyzing the breakthrough curves measured experimentally with nine adsorbents. A technique of measuring the temperature-pulse was incorporated in the experiments, and the reliability of the result was improved. Superactivated carbon with large surface area and plenty of micropores was shown to have the largest separation coefficient and to be promising for the commercial utilization.

**Key words** [separation](#); [nitrogen and methane](#); [pressure swing adsorption](#)

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