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摘要:

对河北开滦矿区不同变质程度的煤进行了纯CO₂ 和纯CH₄ 气体等温吸附实验, 并用Langmuir理论模型(D R, D A)对煤的吸附实验数据进行了拟合, 检验了各模型的拟合程度。结果表明: 中煤阶烟煤的 $\frac{V_{CO_2}}{V_{CH_4}} = 1.21\%$ 对CH₄ 和CO₂ 吸附能力比低煤阶烟煤的林南仓矿11号煤($\frac{V_{CO_2}}{V_{CH_4}} = 0.58\%$)同一煤样对CO₂ 的吸附能力明显大于对CH₄ 的吸附能力。马家沟矿9号煤对CO₂ 和CH₄ 的各模型对其吸附行为拟合误差相差很小, 可用Langmuir方程描述; 林南仓矿煤等温吸附线较复杂, 因用Langmuir较小的吸附势理论D A模型来描述其吸附行为。9号煤对CH₄ 和11号煤对CO₂ 和CH₄ 的吸附均以

关键词: [开滦矿区](#) [等温吸附](#) [吸附模型](#) [二氧化碳](#) [甲烷](#)

Models of Pure CO₂ and Pure CH₄ Adsorption on the Late Paleozoic Coals from Hebei, China [Download Fulltext](#)

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Abstract:

Isothermal adsorption experiments of pure CO₂ and CH₄ on different coals in rank Linnancang Mine and the No.9 Coal from the Majiagou Mine) from the Kailuan Coalfield of Hebei Province were studied. Four different models (Langmuir, BET, D R, and D A) were used to fit the experimental adsorption and their fitting degree were investigated. The results showed that the adsorption capacity of CO₂ ($\frac{V_{CO_2}}{V_{CH_4}} = 1.21\%$) is higher than that of the Linnancang coal ($\frac{V_{CO_2}}{V_{CH_4}} = 0.58\%$). The adsorption capacity of CO₂ is higher than that of CH₄ on the same coal under the same pressure. The adsorption of pure CO₂ and pure CH₄ on the Majiagou coal can be classified as Type I and their fitting errors of experimental data can be presented using the Langmuir isotherm. However, the adsorption of Linnancang coal is complicated, and can be presented using D A model because of its minimum error. Monolayer adsorption of pure CO₂ and pure CH₄ on the No. 11 Coal and that of pure CH₄ on the

Keywords: [Kailuan Coalfield](#) [isothermal adsorption](#) [models fitting](#) [carbon dioxide](#) [methane](#)