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Gas adsorption capacity of shales -Study on geological CO₂ storage in coal-bearing formation-

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CO₂ and CH₄ adsorption capacity of five shales (Bibai(Japan), Kusiro(Japan), Yubari(Japan), Illinois(USA) and gas shale (PA, USA)) are measured by volumetric method at the temperature of 35C and 50C in a pressure range from 0 - 9 MPa. Every shales have a certain amount of adsorption capacity.

The Yubari shale exhibited the largest CO₂ adsorption capacity of 14cc/g, which is equivalent to the middle CO₂ adsorption capacity. The adsorption of shales is not negligible in CO₂ storage in coal-bearing formation.

Keywords: Shale, Coal-bearing formation, CO₂, Geological storage, Adsorption, Coalbed methane