Technological Policy on the Sequestration of CO2 in Japanese Coalbeds, Based upon Their Adsorption and Desorption Properties

Toyohiko Yamazaki[1], Kazuo Aso[2], Jiro Chinju[2]

[1] Adv. Res. Inst. for Sci. & Eng.,Waseda Univ., [2] Adv. Res. Inst. for Sci. & Eng., Waseda Univ.

There are many coalfields in Japanese Island and its offshore. Up to the present, the adsorption and desorption properties of the coals mined from those working faces have been examined, and these results indicate that Japanese coals could be classified as high-volatile bituminous ones comparable with European and North-American coals. Among the Japanese coals, the bituminous coal from Yubari coalmine has almost the same property as those of European and North-American coals, as to the desorption-rate of coalbed gas. However, the sub-bituminous coals, such as Taiheiyo coal, etc., have lower desorption rate of the gas than those coals. Therefore, the test site for the sequestration of carbon dioxide into the coalbed must be selected at the first stage from the coalfields in Japan, based on the ability and stability of CO2-sequestration. The site-selection are much dependent on the coal scientific properties, which are the adsorption and desorption phenomena of CH4 and CO2, and also the transfer characteristics of gas into coal macerals, such as the permeability and diffusibility characteristics. Once the site is selected, a micro-pilot test must be carried out. For the preparation of this test, a gas-injection well must be drilled from the surface to deep coalseams by many directional drillings, keeping the safety and environmental conditions on the surface. The technologies used in the oilfield engineering are very useful to drill the gas well as well as to select the site for CO2-sequestration.