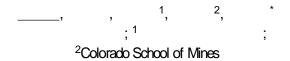
Effects of promoter on the formation of gas hydrate from Blast Furnace Gas



The effect of various promoters was investigated for CO_2 separation from the flue gas of steel-making process using gas hydrate technology. The studied promoters are tetrahydrofuran (THF), propylene oxide and 1,4-dioxane, which are all expected to form a structure II hydrate, and the target gases are CO_2/N_2 mixed gases ($CO_2/N_2 = 20/80$ and 40/60) and Blast Furnace Gas (BFG). The composition of BFG is ($CO_2 : CO : H_2 : N_2 = 20 : 23.8 : 3.5 : 52.7$). The phase equilibrium conditions of gas hydrate were measured for each gas when each promoter was added with various concentrations. For fast acquisition of abundant data, the "continuous" Quartz crystal microbalance (QCM) method was employed. In addition, the crystal structure of each gas hydrate was analyzed by Powder X-ray diffraction (PXRD).