Electrical Resistance of the Clathrate Hydrate for Replacement process

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Gas hydrates have received much attention as the potential natural gas resource in worldwide with the significant amount of methane gas. There are various production methods for gas hydrate such as depressurization, hot water injection, inhibitor injection and swapping (replacement) method. Replacement commonly induced by injecting carbon dioxide or the gas mixture containing CO_2. Replacement production of gas hydrate has merits; 1) to avoid the decomposition of deposits and 2) to sequestrate the injection gas (such as CO_2, N_2/CO_2). In the present study, we observed the change of the electrical resistance during hydrate formation and replacement process by N_2/CO_2 injection with designed reactor including resistance-measurable-parts.