

## 가스하이드레이트 퇴적시료의 전기저항 특성에 관한 실험연구

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### Experimental study on the electrical property of sediment samples bearing gas hydrates

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**Key words** : Gas Hydrates(가스하이드레이트), Resistance(저항), Gas-based case(가스포화경우), Brine-based case(염수포화경우), Ion-exclusion phenomena(이온배척효과)

**Abstract** : The electrical resistance of 4 artificial sediments samples was measured with saturation of gas-hydrate changed. We observed that the resistance of the sediments containing gas-hydrate shows totally different value depending on saturated fluid. Because resistance of the sand columns is greatly affected by the brine saturation, we measured its resistance with gas-hydrate two times. One is for the sand column containing gas-hydrate saturated with gas (gas-based case) and the other is for that saturated with brine-based case. We could not see specific increasing or decreasing trend of resistance with gas-hydrate saturation in case of gas-based case. However, resistance of the gas hydrates sediments shows lower value than that of sediments at initial water saturation in many cases of gas-based case. This might be caused from ion-exclusion phenomena when gas-hydrate forms in the sediment samples. Excluded ion decreases the value of resistance while formation of gas-hydrate increases it. The increasing tendency of resistance can be seen in the brine-based case. The effect of excluded ion is diminished by brine flushing.

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