

Spectroscopic Identification of Natural Gas Hydrate Collected from East Sea, Korea

신용철, 박영준, 차민준, 이 혼*

KAIST

(h_lee@kaist.ac.kr*)

Clathrate hydrates are a crystalline compounds formed by host frameworks and guest gas molecules. Water framework linked by hydrogen bond and gas molecule such as methane, ethane, and hydrogen make stable non-stoichiometric compound through van der Waals interaction. In the natural gas hydrate(NGH), huge amounts of energy sources exist in the form of natural gas, so gas hydrates have received much attention. Recently, gas hydrate deposits estimated more than 600 million tons have been discovered in the East Sea, Korea, about 100km southern region from Ulleung-do. Here, we attempt to identify the types of hydrate structure, gas composition of NGH, and cage occupancy of NGH through spectroscopic observation such as solid-state nuclear magnetic resonance, Raman and powder x-ray diffractometer.