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CO₂ REDUCTION BY CLATHRATE HYDRATE CRYSTALLIZATION

Ni Liu*, Xiaobo Xuan, Daoping Liu, Yingming Xie

School of Energy and Power Engineering, University of Shanghai for Science and Technology, Shanghai 200093, China

Abstract

It is a promising way for CO₂ capture and sequestration by hydrates crystallization. In this study, the characteristics of CO₂ hydrate formation are investigated in a small scale dynamic reactor under pressure conditions from 2.0-3.5 MPa and temperature varied between 0.5-4.0°C. The effects of supercooling degree and pressure on hydrates formation were discussed. Hydrates formation can be completely finished within 150 min and the final pressure-temperature points of system are just located on the hydrates equilibrium curve. The induction time is short which increases with the decreasing of supercooling degree and increasing of pressure. CO₂ hydrate shows a high gas storage capacity at a pressure of 2.5MPa and a temperature of 0.5°C.

Key words: carbon dioxide, gas hydrate, induction time, supercooling degree

Received: March, 2011; Revised final: July, 2011; Accepted: July, 2011

* Author to whom all correspondence should be addressed: e-mail: ni-liu@hotmail.com ; Phone: +86-21-55277261; Fax: +86-21-55272376