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Authors: Hideo Tajima, Miki Hattori, Hikaru Akagami, Hiroyuki Komatsu, Kazuaki Yamagiwa



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## Effects of hydrate-slurry decomposition conditions on gas generation and recovery performance

Hideo Tajima\*, Miki Hattori, Hikaru Akagami, Hiroyuki Komatsu, Kazuaki Yamagiwa

Graduate School of Science and Technology, Niigata University, 2-8050 Ikarashi, Niigata 950-2181, Japan.

Corresponding Author: Hideo Tajima, Associate Professor

Telephone; +81-25-262-7277, E-mail; h\_tajima@eng.niigata-u.ac.jp

Graduate School of Science and Technology, Niigata University, 2-8050 Ikarashi, Niigata 950-2181, Japan

### Highlights

- Slurry decomposition conditions affected refrigerant gas recovery and separation.
- Maximum separation factors of ~50 and 20 for R22 and R134a, respectively.
- Pressure and temperature effects differed between refrigerants and N<sub>2</sub>.
- Separation factor variations were explained based on gas-generation rates.

### Abstract

Many studies have been conducted on the application of hydrate-based gas separation to recover or reduce greenhouse-gas emissions. We evaluated the effects of hydrate-slurry decomposition conditions, specifically depressurization and heating, on gas recovery and separation, by using mixtures of refrigerants R22 or R134a with N<sub>2</sub> as models of a greenhouse gas and a low-pressure gas,

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