

Membrane Application for Gas Separation and Optimization of Membrane Process

Lee, Jung-Hyun, Ph.D. 이정현

Separation & Conversion Materials Laboratory,
Korea Institute of Energy Research
junghyun279@kier.re.kr

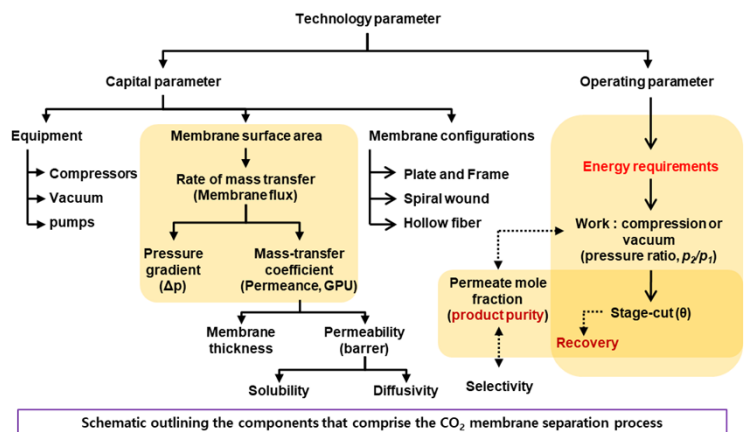
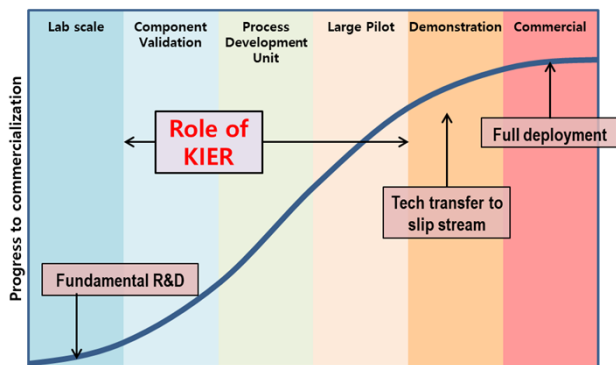


Descriptions of Research Topics

- Thin film composite(TFC) development for carbon gas separation
- Lab- and Bench- scale membrane configuration
- Development of membrane process and operating condition optimization
- Industrial application for gas separation

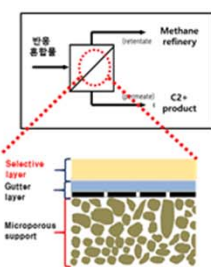
Applications:

- Gas separation, purification, upgrading
- CO₂ capture
- Methane recovery
- Process optimization



J. Wilcox, Carbon Capture, Springer, 2012.

Membrane Material



Lab-scale thin film composite

Membrane Configuration



Lab-scale multi-stage configuration

Process optimization



Bench-scale process test

Research Fields 1 membrane application 2 membrane process optimization

Keywords TFC, CO₂ capture, methane refinery, gas purification, polymeric membrane, process optimization, membrane application, hydrocarbon separation

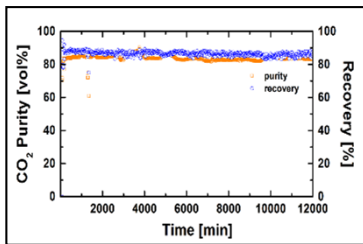
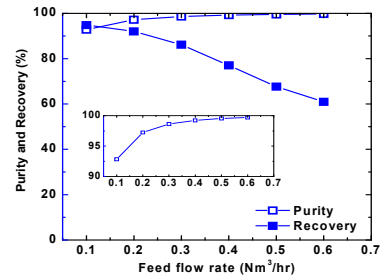
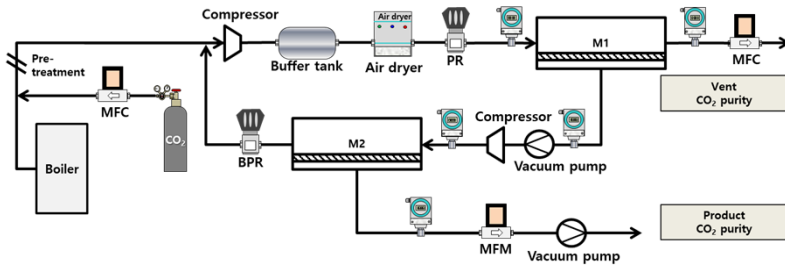


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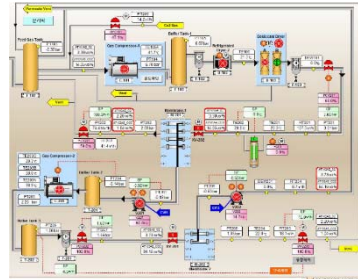
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CO₂ capture membrane configuration

Multi-stage configuration for CO₂ capture from post-combustion flue gas



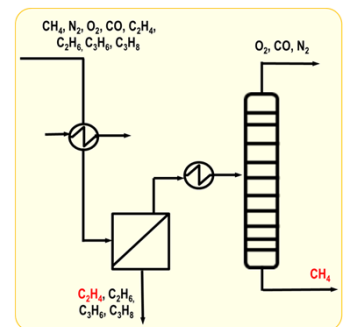
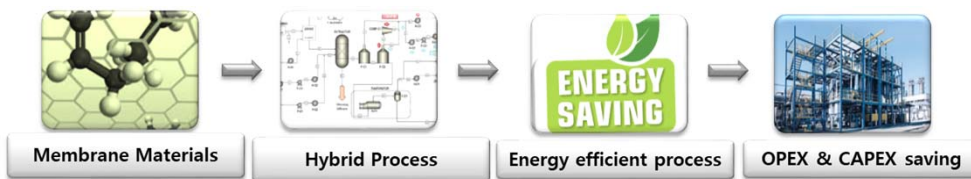
CO₂ Purity 84% Recovery 81% @ 3.6 m³/h



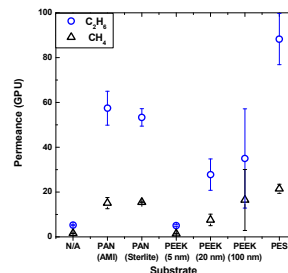
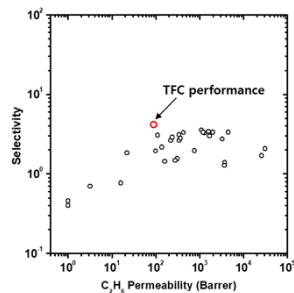
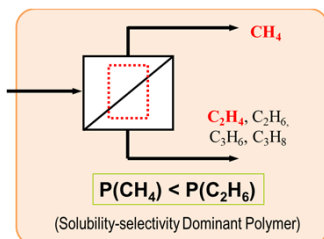
CO₂ Purity 84.15% Recovery 93% @ 107 m³/h

Methane for hybrid process

Membrane application for methane recovery from C1 refinery technology



Membrane separation for hybrid process



TFC for CH₄ recovery

