

Accepted Manuscript

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PII: S1383-5866(18)32492-4

DOI: <https://doi.org/10.1016/j.seppur.2018.08.046>

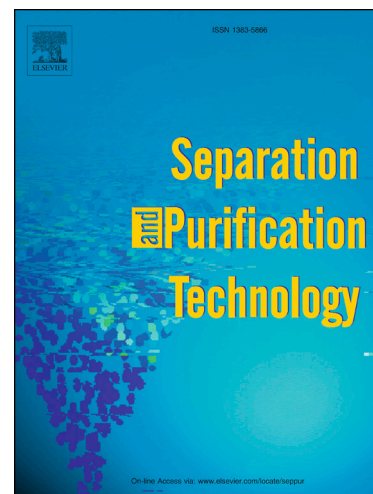
Reference: SEPPUR 14867

To appear in: *Separation and Purification Technology*

Received Date: 19 July 2018

Revised Date: 24 August 2018

Accepted Date: 24 August 2018



Please cite this article as: R. Castro-Muñoz, V. Fíla, V. Martín-Gil, C. Muller, Enhanced CO₂ permeability in Matrimid[®] 5218 mixed matrix membranes for separating binary CO₂/CH₄ mixtures, *Separation and Purification Technology* (2018), doi: <https://doi.org/10.1016/j.seppur.2018.08.046>

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Abstract

Membrane gas separation is an emerging technology used for the separation of CO₂. Matrimid[®] 5218, one of the current polymers used in membrane gas separation, has good selectivity, but poor CO₂ permeability. We wondered if its CO₂ permeability could be enhanced by the addition of a CO₂-philic additive (PEG 200) and ZIF-8 nanoparticles. ZIF-8 particles were synthesized with a nanoparticle size of 33.83 ± 6.2 nm. These particles were characterized by SEM and XRD. Dense film-casting method was used to prepare novel ternary mixed matrix membranes with low PEG concentrations (4 wt.%) at different filler loadings (10-40 wt.%). In CO₂/CH₄ binary

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