

## Author's Accepted Manuscript

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PII: S0376-7388(17)32271-8  
DOI: <https://doi.org/10.1016/j.memsci.2017.10.008>  
Reference: MEMSCI15634

To appear in: *Journal of Membrane Science*

Received date: 7 August 2017  
Revised date: 17 September 2017  
Accepted date: 4 October 2017

Cite this article as: Sungil Jeon, Hamed Karkhanechi, Li-Feng Fang, Liang Cheng, Takahiro Ono, Ryota Nakamura and Hideto Matsuyama, Novel preparation and fundamental characterization of polyamide 6 self-supporting hollow fiber membranes via thermally induced phase separation (TIPS), *Journal of Membrane Science*, <https://doi.org/10.1016/j.memsci.2017.10.008>

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**Novel preparation and fundamental characterization of polyamide 6 self-supporting hollow fiber membranes via thermally induced phase separation (TIPS)**

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**Abstract:**

Polyamide 6 hollow fiber membranes were successfully fabricated via a thermally induced phase separation (TIPS) method for the first time to the best of our knowledge. Dimethyl sulfone (DMSO<sub>2</sub>) and sulfolane were used as diluents for the TIPS method. Also, poly(ethylene glycol) 200, 300, and 400 and 1,3-butanediol were used as bore solutions to control the pores of the selective layer in the lumen side. Furthermore, propylene glycol was used as a mixing component in quenching bath to generate large pores on the outer surface of the hollow fiber membrane. The effects of polymer concentration, diluent, bore solution, and quenching bath on the morphologies, water permeabilities, and mechanical properties of the

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