

Cyclodextrin complexed Poly (ionic liquid) with pseudo-LCST property as draw solutes in forward osmosis

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Polymerized IL (PIL) with pseudo LCST property prepared by the complexation of poly ([vblm] [Tf<sub>2</sub>N]) with methylated β-CD was utilized as a draw solute in FO system. Water flux( $J_v$ ), reverse solute flux( $J_s$ ), specific solute selectivity ( $J_s/J_v$ ), and effect of membrane orientation on the PIL complex performance was elucidated using HTI-CTA membrane. The PIL complex generated a considerable water permeation with a negligible solute leakage. The performance of PIL complex is superior over the extensively studied NaCl attributed to its low  $J_s/J_v$  during FO runs. This work was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science and ICT (No. 2016R1A2B1009221 and No. 2017R1A2B2002109), and the Ministry of Education (No. 2009-0093816).