

Study of draw solution using ionic liquids in forward osmosis

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Forward osmosis (FO) is used in wide range of applications as low energy, ease of operation technology compared to the reverse osmosis. FO is regard as natural process that utilizes an osmotic pressure gradient to draw the water from the dissolved solutes in the feed solution across a semipermeable membrane. In order for FO to advance from research to practical and marketable technology, there is strong need to achieve breakthroughs in the performance of FO membranes and draw solutes. In this work, the use of ionic liquids with different anions and cations as draw solute in FO was investigated. As a result, ionic liquids showed comparable water flux and lower reverse solute fluxes compared to sodium chloride as control draw solute. However, the easy separation and recovery might enhance the use of ionic liquids as draw solute in FO.