

# A Glance on Thermo-Responsive Ionic Liquids as Draw Solution in Forward Osmosis System

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## **ABSTRACT**

The promising forward osmosis (FO) membrane desalination is viewed as a potentially viable energy efficient performance technology compared to other techniques. But, the core problem in the FO process is the absence of appropriate draw solutes that can be effectively regenerated. Thermoresponsive materials are thus attractive for draw solutes to promote in realizing this target. Among those, thermoresponsive ionic liquids (TRILs) stand out as prominent candidates as their ionic nature generally pledge a high osmotic pressure. The water flux achieved in FO process indicated there indeed still a needed of better approach in identifying an ideal draw solution. Besides water flux, the attempt to clarify the factor that effect FO performance such as osmotic pressure, operating conditions and membrane selection yet vague. Due to a large number of possible ILs combination, there are several prediction methods in screening a potential ILs before synthesis instigated. Finally, the conclusions and important summaries were presented according to the data collected.

**KEYWORDS:** Forward osmosis, desalination, draw solution, ionic liquids, thermoresponsive, water treatment

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