

Effect of draw solute and operating conditions on forward osmosis process

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Reverse osmosis(RO) membrane process has been widely used for concentration and separation in many field. RO process uses hydraulic pressure to oppose the osmotic pressure of feed solution to produce purified water. Recently forward osmosis(FO) membrane process is attracted as a alternative membrane process. FO process is an emerging technology used in desalination, wastewater treatment and power generation. FO applications are suitable for global trend which is demand for low energy technologies and advantage of the mebrane process compared to the RO process that uses hydraulic pressure. This study investgates the effects of draw solute and operating conditions on FO process. Various chemicals are suggested and tested as solutes for draw solution, particularly in seawater desalination applications. Furthermore, this study consider factors which affect performance of FO process such as membrane type, orientation, flow rate, fouling and concentration polarization.