

Cost-based feasibility study of draw solution assisted reverse osmosis process in desalination technology as changing various membrane parameters

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In this study, we suggests a newly designed two-staged reverse osmosis for desalination technology by utilizing draw solution concept which is usually employed in FO process. The process is motivated by FO process, however, in this process, the concentration of the draw solution is lower than seawater unlike the FO. Since the pressure requirement for producing drinking water from seawater is caused by high concentration gradient, the pressure requirement could be significantly reduced as decreasing concentration difference between the seawater and the draw solution. After the process was theoretically and mathematically modelled, the economic feasibility of the process was analysed. And the effect of the membrane characteristics into specific water cost was also investigated as changing various membrane parameters.