A systematic method to find an optimal draw solute for forward osmosis desalination process

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A method to find a draw solute for forward osmosis desalination is developed. The economics of a forward osmosis process is largely influenced by the selection of a draw solute and energy consumed for its separation from the fresh product water. The proposed method evaluates a vast number of possible draw solutes by predicting the production rate of fresh water, investment cost and energy consumption in the separation process. The possible draw solutes are confined to electrolytes and its separation processes to thermal systems. Subsequently, a cost-minimizing draw solute is determined subject to any necessary constraints. The developed method will contribute to designing commercially viable forward-osmosis desalination processes.