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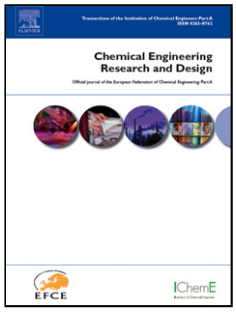

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ACCEPTED MANUSCRIPT

Improvement of humidification–dehumidification desalination unit using a desiccant wheel

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Highlights

- HDH desalination unit using a desiccant wheel is theoretically studied.
- The optimum condition of different parameters of desalination unit is presented.
- Desalination unit with desiccant wheel is more efficient to provide distillate water.
- The maximum recovery ratio is found as 46% with minimum specific thermal energy is 0.149kWh/kg.
- The maximum total distillate rate and Gain output ratio are 0.46 kg_w/kg_a and 4.515.

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