

## Supplementary Materials

# Hole-type spacer for more stable shale gas produced water treatment by forward osmosis

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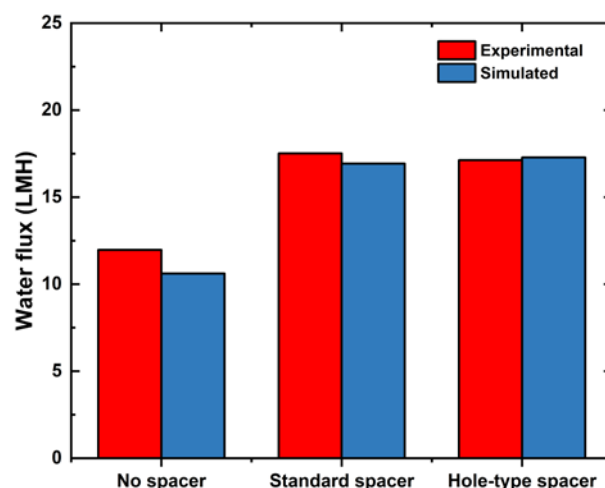
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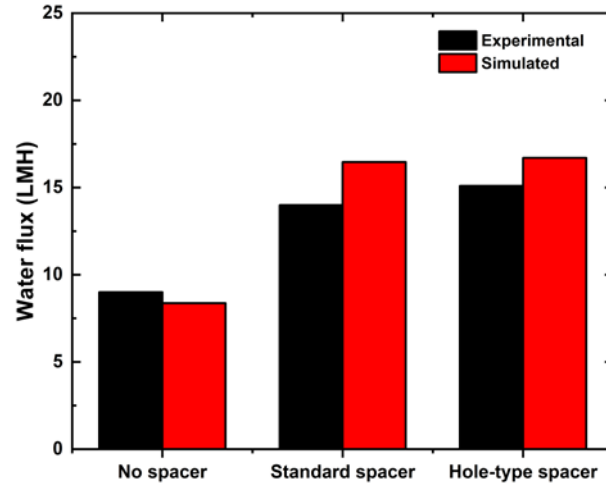
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**Table S1.** FO membrane characteristics.

Parameter	Values
A (LMH/bar)	1.31
B (LMH)	1.80
S (m)	0.000463



**Figure S1.** Experimental and simulated water fluxes produced by using 0.3 M NaCl as FS and 1.2 M NaCl as DS.



**Figure S2.** Experimental and simulated water flux produced by using synthetic shale gas produced water as FS and 5 M NaCl as DS.