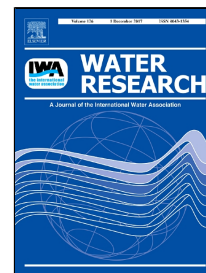


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Recovery of water and minerals from shale gas produced water by membrane distillation crystallization

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Research Highlights

- MDC was newly proposed for shale gas produced water (SGPW) management.
- MDC could effectively recover both water and minerals from SGPW.
- T_{Cr} and CFV were optimized for water and solid production as well as energy consumption.
- Mineral recovery including $CaCO_3$, NaCl from SGPW was accelerated at low T_{Cr} .
- Crystal particle transfer and secondary nucleation at high CFV caused scaling in MD.

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