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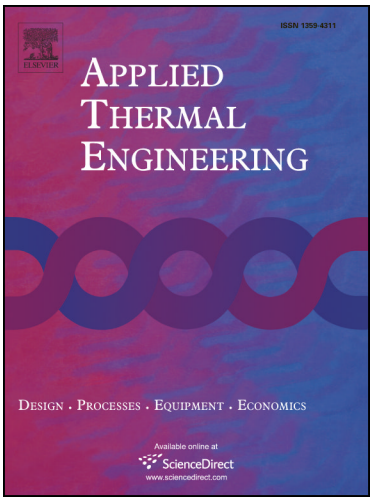

Adsorption desalination-cooling system employing copper sulfate driven by low grade heat sources

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ACCEPTED MANUSCRIPT

Adsorption desalination-cooling system employing copper sulfate driven by low grade heat sources

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ABSTRACT

In this study benefits of employing copper sulfate salt hydrate with water vapor as a new adsorption pair in thermally driven adsorption desalination-cooling systems (ADCSs) have been investigated. Adsorption characteristics (isotherm and kinetic) of copper sulfate/water vapor pair have been presented in this study within temperature range of 25-55°C. Sun-Chakraborty (S-C) and Dubinin-Astakhov (D-A) models have been used for fitting isotherms results, while linear driving force (LDF) model has been used for the kinetics results. Experimental adsorption capacity of water vapor onto copper sulfate is found to be around 0.51 kg/kg at 25 ^{o}C. Activation energy (E_a) and the pre-exponential coefficient

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