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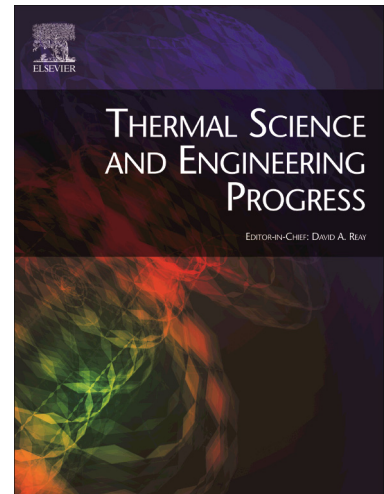
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D.B. Jani, Manish Mishra, P.K. Sahoo

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Investigations on effect of operational conditions on performance of solid desiccant based hybrid cooling system in hot and humid climate

D.B. Jani^{a*}, Manish Mishra^b, P.K. Sahoo^b

^aDepartment of Mechanical Engineering, GEC, Dahod, Gujarat Technological University, GTU, Ahmedabad.

^bDepartment of Mechanical and Industrial Engineering, IIT, Roorkee.

E-mail: ¹dbjani@rediffmail.com, ²mmishfme@iitr.ac.in, ³sahoofme@iitr.ac.in

Phone number: +91-9428044640*

ABSTRACT

A solid desiccant based hybrid system for space cooling application is proposed and analyzed. Performance assessment of the cooling system was carried out with use of experimental test set up during summer cooling season. Performance was evaluated in terms of dehumidifier effectiveness and coefficient of performance of the system. Experimental measurements were carried out at different reactivation temperature for change in ambient conditions. It is found that the regeneration temperature has a substantial effect on the system performance for the regeneration heat supply to reactivate the dehumidifier. Moreover, the obtained result depicts the solid desiccant based hybrid cooling system can attain better performance by ensuring its efficacious operation in hot as well as humid conditions to maintain required thermal comfort by ensuring 65.59% reduction in the humidity ratio as compared to that of the outdoor air.

keywords: coefficient of performance, hybrid cooling, reactivation heat, desiccant wheel, moisture removal rate.

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