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A review on use of TRNSYS as simulation tool in performance prediction of desiccant cooling cycle

D. B. Jani, Kiran Bhabhor, Mohsin Dadi, Sachindra Doshi, P. V. Jotaniya, Harish Ravat & Kumar Bhatt

Gujarat Technological University, GTU, Ahmadabad, India
Parul University, Baroda, India

Abstract:
Solid desiccant-assisted cooling and dehumidification systems are becoming very popular nowadays for maintaining the required thermal comfort in different residential and industrial cooling applications. Its performance can be evaluated by simulating it with TRNSYS simulation software which depends on many operational and geometrical parameters of the thermal system. TRNSYS is used as simulation software having transient in nature mainly for simulating the thermal systems with good agreement within acceptable error bands. An overview on modeling the thermal cooling system and simulation of the same that includes pioneer works and analysis of previous transient simulation results that mainly includes TRNSYS was presented here. Assumptions, a detailed modeling of various thermal cooling system components of the desiccant-powered thermal cooling system and its simulation performed using TRNSYS are also discussed. The main aim of the present survey is to review the applicability of TRNSYS simulation and to confirm the sustainability, feasibility and potential use of desiccant-powered thermal space cooling systems for ameliorating the energy and cost saving in air-conditioning of buildings. Review is useful for making opportunities for further research of TRNSYS simulation and its feasibility in thermal system design in the application of building space cooling.

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