

Abstract

In this study, the performance of the basic adsorption cooling system based on a metal organic framework, HKUST-1, is investigated and compared with that of a zeolite based system. The optimal regeneration temperature to maximize the COP of the HKUST-1-water based basic adsorption cycle is presented. The solar-thermal powered adsorption chiller model running on the HKUST-1-water based basic adsorption cycle is developed and integrated into a building model (two-story house located in Kingsville, Texas) in TRNSYS. The yearly performance of the integrated system is simulated by employing the latest typical meteorological year data (TMY3) for Kingsville, Texas. The solar fraction of the solar-assisted adsorption cooling system is also presented.

Citation

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