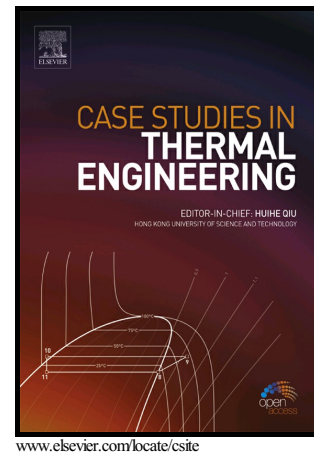


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Performance of silica gel-water solar adsorption cooling system

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Abstract

The technology of cold production by adsorption is an effective way of heat conversion. It can significantly improve energy efficiency and reduce environmental pollution. For this purpose, an experimental platform has been developed combining an internal combustion gas engine (cogenerator), a refrigerating adsorption machine, thermal solar collectors and wooden construction split in two compartment, a cold one conditioned by cooling ceilings and a hot one conditioned by heating floors. The platform is completely instrumented. We developed a simulation model that is confronted to experimental measurements. This paper deals with numerical study of refrigeration systems with silica gel / water pair with SIMULINK. The results include the total solar radiation, the temperature profiles of hot, cooling and chilled water in addition to Temperature profiles of cogenerator and room.

Keywords solar adsorption refrigeration, silica gel, simulation, performance.

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