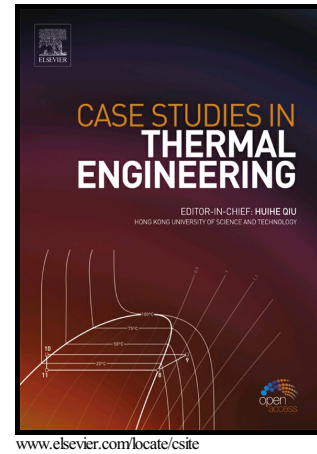


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PRELIMINARY ASSESSMENT OF A SOLAR ABSORPTION AIR CONDITIONING PILOT PLANT

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PRELIMINARY ASSESSMENT OF A SOLAR ABSORPTION AIR CONDITIONING PILOT PLANT

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Abstract

A solar absorption cooling system of 5 kW of cooling capacity operating with the ammonia/lithium nitrate mixture was developed at the Instituto de Energías Renovables (IER) of the Universidad Nacional Autónoma de México (UNAM) and then transferred and installed at the Instituto Tecnológico de Culiacán (ITC), in Culiacán, Sin. The heat was supplied to the cooling system by means of a solar collector field. The cooled water produced by the absorption systems was used to provide air conditioning. Temperatures as low as 7 °C were achieved by the absorption system with COP varying from 0.28 to 0.48.

Keywords: absorption cooling system, solar cooling systems, ammonia/lithium nitrate.

1. Introduction

It has been demonstrated that absorption cooling is an opportunity technically feasible to take advantage of waste heat or solar energy. From the literature review carried out by Best and Rivera [1] for absorption cooling systems, it is clear that the ammonia/water and the water/lithium bromide have been the most widely used mixtures in absorption systems, but it is also stated that due to their well-known drawbacks new mixtures have been studied

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