

## Investigation on The Feasibility of a Solar Desiccant Cooling System in Libya

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**Abstract :** With a particularly significant growth rate observed in the Libyan commercial and residential buildings coupled with a growth in energy demand, solar desiccant evaporative cooling offers energy savings and promises a good sharing for sustainable buildings where the availability of solar radiation matches with the cooling load demand. The paper presents a short introduction for the desiccant systems. A mathematical model of a selected system has been developed and a simulation has been performed in order to investigate the system performance at different working conditions and an optimum design of the system structure is established. The results showed a technical feasibility of the system working under the Libyan climatic conditions with a reasonable COP at temperatures that can be obtained through the solar reactivation system. Discussion of the results and the recommendations for future work are proposed.

**Keywords :** computer program, solar desiccant wheel cooling, system modelling, simulation, technical feasibility

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