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The Experimental Measurement of the LiBr Concentration of a Solar Absorption Machine

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Abstract : The excessive consumption of fossil energies (electrical energy) during summer caused by the technological development involves more and more climate warming. In order to reduce the worst impact of gas emissions produced from classical air conditioning, heat driven solar absorption chiller is pretty promising; it consists on using solar as motive energy which is clean and environmentally friendly to provide cold. Solar absorption machine is composed by four components using Lithium Bromide /water as a refrigerating couple. LiBr- water is the most promising in chiller applications due to high safety, high volatility ratio, high affinity, high stability and its high latent heat. The lithium bromide solution is constitute by the salt lithium bromide which absorbs water under certain conditions of pressure and temperature however if the concentration of the solution is high in the absorption chillers; which exceed 70%, the solution will crystallize. The main aim of this article is to study the phenomena of the crystallization and to evaluate how the dependence between the electric conductivity and the concentration which should be controlled.

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