

CONFIGURATION OF A 2 Kw CAPACITY ABSORPTION REFRIGERATION SYSTEM DRIVEN BY LOW GRADE ENERGY SOURCE

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ABSTRACT

Consistently increasing CO₂ emission and ozone depletion from CFC's are serious environmental issues challenging scientific community. The dependence on fossil fuels has to be reduced and alternative environmental friendly options need to be explored. In this aspect, vapor absorption system gives scope of utilizing low grade energy source i.e. solar panel for generating cooling effect which is dominated by high grade energy driven compression technology. The LiBr aqueous solution based absorption cycle consists of four stages: generation, condensation, evaporation and absorption with ideally no moving part. In this paper, a configuration of 2kW capacity LiBr-Water based absorption refrigeration system is presented. The selection of evaporator capacity i.e. 2kW guides the operating conditions of other component in the cycle. Empirical correlations had been used to determine heat transfer rate. Based on these results specification for heat exchangers are established. This configuration serves as a platform to design for manufacturing of such systems.

KEY WORDS: Absorption Cycle, Low Grade Energy, Overall Heat Transfer Coefficient, System Configuration