

Vapour Adsorption Refrigeration System for Space Cooling

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Fig: Experimental Setup

Energy consumption in buildings has been increased in recent years with the development of the economy worldwide. Air-conditioning is provided by electrically-driven vapor-compression air conditioning unit especially during the summer. Electrically driven VCR requires high grade energy and it also damage our environment. On other hand, thermally driven adsorption refrigeration and heat pump systems got considerable attention nowadays due to its manufacturing simplicity and environment friendly adsorbent/refrigerant pairs. it may have applications in both developed and developing countries. Applications in developing countries such as vaccine storage or large-scale food preservation have been the subject of much research and in developed countries the main area of interest is air conditioning. Adsorption refrigeration is cost effective in waste heat recovery systems. The present work is focused towards the design and development of refrigeration system for space cooling based on the working principle of adsorption system by using Activated carbon and ammonia selected as working pair. Advantages of using Adsorption refrigeration is clean energy and environment friendly refrigerants. Moreover, they can be driven by low temperature heat source, typically below 1000C, which can be reduced to 500C in multi-staging adsorption is performed.