Performance Evaluation of Vapour Compression Cycle Operating on LPG as a Refrigerant

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Abstract
Most of refrigerants used in vapor Compression system were Chlorofluorocarbon (CFCs) and Hydro Chlorofluorocarbon (HCFCs) which contains chlorine and if any leakage in the system, these gases will group and reach stratosphere. The chlorine atoms in the gases will act as a catalyst to destroy ozone layer and cause ozone depletion which causes health hazards, global warming, melting of polar ice caps and drought. Hence, it is necessary to minimize the Global warming and Ozone depletion. The refrigerant R22 widely used in the air conditioners is a major Contributor of Chlorofluorocarbons (CFCs) which cause irreparable loss to the ozone layer and has to be replaced. There are two types of global warming contributions through refrigeration and air conditioning systems. The first one is the Direct Global Warming Potential (DGWP) due to the emission of refrigerants and their interaction with heat radiation. The second one is the Indirect Global Warming Potential (IDGWP) due to the emission of Carbon Dioxide (CO2) by consuming the energy that is generated through the combustion of fossil fuels. Experimental work has been performed on three capillary tubes of different diameter to determine the performance of domestic water cooler when a extemporaneous is liquefied petroleum gas (LPG) which is locally available and comprises 24.4% propane, 56.4% butane and 17.2% iso butane which is very from company to company. The LPG is cheaper and possesses an environmental friendly nature with no ozone depletion potential (ODP). It is used in world for cooking purposes.

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Index Terms

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Keywords

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