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# Refrigeration System using LPG as a Refrigerant

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**Abstract:** *This paper investigates the result of an experimental study carried out to determine the performance of domestic refrigerator when a liquefied petroleum gas (LPG) which is locally available which comprises of 24.4% propane, 56.4% butane and 17.2% isobutene which is varied from company to company is used as a Refrigerant.[1] The LPG is cheaper and possesses an environmental friendly nature with no Ozone Depletion Potential (ODP) and no Global Warming Potential (GDP).[2] It is used in world for cooking purposes. The refrigerator used in the present study is designed to work on LPG. The performance parameters investigated is the refrigeration effect in certain time. The refrigerator worked efficiently when LPG was used as a refrigerant instead of R134a. The use of LPG for refrigeration purpose can be environment friendly since it has no ozone depletion potential (ODP). Usually LPG is used as a fuel for cooking food in houses, restaurants, hotels, etc.[3] and the combustion products of LPG are CO2 and H2O.[4] In this project we have designed and analyzed a refrigerator using LPG as refrigerant.[5] LPG is available in cylinders at high pressure. When this high pressure LPG is passed through the capillary tube of small internal diameter, the pressure of LPG is dropped due to expansion and phase change of LPG occurs in an isoenthalpic process.[7] Due to phase change from liquid to gas latent heat is gained by the liquid refrigerant and the temperature drops. In this way LPG can produce refrigerating effect for a confined space. [8]*

**Keywords:** LPG Refrigerant, Domestic Refrigerator, Expansion, Refrigerating Effect, Cooling Effect, COP

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