B.LD.E.A'S V.P.DR.P.G.HALAKATTI COLLEGE OF ENGINEERING AND TECHNOLOGY
BIJAPUR-586103

AUTOMOBILE ENGINEERING DEPARTMENT

PROJECT REPORT

A KSCST Sponsored Project

TITLE OF PROJECT

DESIGN AND FABRICATION OF CAR A\C SYSTEM USING LPG AS REFRIGERANT AND FUEL

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ABSTRACT

Ozone depletion and global warming require replacement of CFC refrigerants like R12. The HFC R134a is non-flammable, difficult to synthesis, has zero ozone depletion and high global warming. LPG refrigerants are highly flammable, occur naturally, have zero ozone depletion and negligible global warming. In Germany most new Air-conditioners use R600a and many heat pumps and air conditioners now use R290 with measured energy consumption 10 to 20% less than R12, R22 or R134a. LPG mixtures have successfully replaced R12 and R22.

Abboud (1994) measured the air-conditioner performance of 5 popular Australian cars with R12 and then LPG mixtures of about 60% propane and 40% butane, this gives typically 10% more cooling than R12. Refrigerant property parameters show that R600a has half the leakage, pressure loss and double the heat transfer properties of R12 and R134a.

The insurance risk increment LPG flammability for air conditioners is zero. The increment for air-conditioners is negative because of the high cost of the R12 and R134a. For large systems ventilation of plant rooms and other LPG safety precautions can make insurance risk increment zero or negative if required.