

## Comparative Exergy Analysis of Vapor Compression Refrigeration System Using Alternative Refrigerants

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**Abstract :** In present paper, the performance of various alternative refrigerants is compared to find the substitute of R22, the widely used hydrochlorofluorocarbon refrigerant in developing countries. These include the environmentally friendly hydrofluorocarbon (HFC) refrigerants such as R134A, R410A, R407C and M20. In the present study, a steady state thermodynamic model (includes both first and second law analysis) which simulates the working of an actual vapor-compression system is developed. The model predicts the performance of system with alternative refrigerants. Considering the recent trends of replacement of ozone depleting refrigerants and improvement in system efficiency, R407C is found to be potential candidate to replace R22 refrigerant in the present study.

**Keywords :** refrigeration, compression system, performance study, modeling, R407C

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