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Abstract Details

Title: Alternative refrigerants with low gwp & odp for commercial and domestic purpose: a review

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Abstract: Refrigeration is a process for maintaining a temperature below the surrounding temperature. Tetrafluroethane R134 is commonly used as a refrigerant in domestic refrigeration after 2000, before that halogenated refrigerants R12 were used in refrigeration which responsible for ozone layer depletion which act as armour for preventing us from ultraviolet radiation. Refrigerant R134a has zero ozone layer depletion (OLD) but higher rate of global warming potential (GWP) and after Kyoto protocol global warming is serious issue as it increases the overall temperature of our surroundings and then arising the need of alternate refrigerants that can be used in place of refrigerant R134a (Tetrafluroethane) in domestic refrigerator. In this paper, study has been done on the alternative refrigerant for replacing the traditional refrigerant R134a. Various researchers working for the find an alternative refrigerant with higher coefficient of performance and cooling effect. Many researchers investigated the blend of propane and isobutane (R290 & R600a) which is a pure hydrocarbon refrigerant which have the almost same thermodynamic physical properties as of Tetrafluoroethane refrigerants. In this paper reviewed the various research works for selecting the blend of refrigerant, acceptable thermo-physical properties, blend in various proportion and operating parameters.

Keywords: Alternative refrigerants, Global warming potential, Ozone layer depletion and thermo-physical properties.