

عنوان مقاله:

Experimental study of R600a and R436A to replace R134a in a domestic refrigerator and freezer

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

After Montreal protocol R134a and hydrocarbons like propane (R290), n-butane (R600) and isobutane (R600a) are using as refrigerant in most of domestic refrigerators and freezers. But in 1996 Kyoto protocol called for phase out of R134a due to its high GWP¹, and replace it with new lowODP² and GWP refrigerants. Hydrocarbons have zero ODP and 20 GWP. This paper presents feasibility study of using pure and mixture hydrocarbons as alternative refrigerant of R134a in adomestic refrigerator and freezer. A domestic R134a type refrigerator-freezer tested with threedifferent refrigerants namely R4363 , R600a and 105 g R134a. Temperatures at various locations in the domestic refrigerator-freezer and refrigeration cycle and consumed energy recorded. The results showed that energy consumption of R600a and R436A are the same and about 5% is lower than R134a. The effect of freezer and refrigerator air temperatures on energy consumption considered with R436A as a refrigerant. The results showed that R600a and R436A can be considered as a convenient alternative for R134a

کلمات کلیدی:

R600a; R436A; R134a; Domestic refrigerator-freezer

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