

Experimental works on the influence of Malaysian kitchen temperature on the energy consumption of domestic refrigerator

ABSTRACT

The paper presents, an experimental and theoretical study was conducted to investigate the influence of Malaysian kitchen temperature on the heat transfer coefficient of compressor and condenser as well as on the energy consumption of the domestic refrigerator of 150 L, manufactured in Malaysia used as a test unit for the study. The study was conducted in a controlled condition using two different kitchen temperatures (25 and 30 °C). The results show a decreasing in the heat transfer coefficient of compressor and condenser happened as much as the kitchen temperature increased due to the increasing that happened in their outer temperature. On the other hand, an increasing about 231.6 Wh day⁻¹ reported in the energy consumption of domestic refrigerator while the kitchen temperature was increased from 25 to 30 °C. This means about 46.3 Wh day⁻¹ was increased for each one degree increased in the kitchen temperature.

Keyword: Energy consumption; Malaysian kitchen; Domestic refrigerator; Temperature; Experimental technique