

Abstract

Refrigerants are commonly used as heat transfer fluid in refrigeration, heat pumps, and air conditioning systems. Nanorefrigerants are a special kind of nanofluid synthesized by dispersing nanoparticles into refrigerants or lubricant oil to improve its thermophysical and heat transfer characteristics. The optimization of the thermophysical properties of nanorefrigerant strongly depends on the successful synthesis procedures used for producing a stable suspension of nanoparticles in the refrigerants. In this study, a review was carried out to understand the synthesis of nanorefrigerant and the effect of nanoparticle size, type and concentration, temperature, base fluid type on the thermophysical properties of the nanorefrigerant. The effect of nanorefrigerant on the pressure drop and boiling heat transfer within the vapour compression refrigeration system (VCRS) was reviewed. From the review, the thermophysical properties of the nanorefrigerants affect the pressure drop and heat transfer characteristics of the vapour compression refrigeration system.