

Abstract

Interaction between electrons at the critical temperature that culminates into formation of Cooper pair holds the key in explaining cuprates high temperature superconductivity. We study the effects of the number of copper oxide planes on thermodynamic properties of Mercury based high temperature superconductivity due to an interaction between cooper pair and electrons. We noted that the energy of interaction at the critical temperature was seen to increase with increase in the number of copper oxide planes. The specific heat, Sommerfeld coefficient and the entropy per unit mass, decreased with an increase in the number of copper oxide planes. The peak Sommerfeld coefficient temperature was noted to be approximately 0.66 times critical temperature in all considered cases of mercury based cuprates.