

Magnetic and thermodynamic properties of Ce₄RuAl compound

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The results of magnetic susceptibility and heat capacity measurements are reported for the Ce₄RuAl compound above room temperature to low temperature range (400 K to 0.46 K) and in magnetic fields up to 7 T. The magnetic susceptibility $\chi(T)$ exhibits a distinct anomaly at 0.95 K which most probably suggests a paramagnetic to antiferromagnetic phase transition. Magnetic susceptibility obeys the Curie Weiss law and revealed an effective magnetic moment $\mu_{eff} = 2.18 \mu_B/\text{Ce}$ which is close to the value for free Ce³⁺ ($\mu_{eff} = 2.54 \mu_B$). The paramagnetic Weiss temperature indicates net antiferromagnetic correlations. In the specific heat a peak at 1.3 K supports the bulk nature of the phase transition observed in $\chi(T)$. The Sommerfeld coefficient is moderately enhanced in the paramagnetic phase, and suggests f-c correlations among the electrons prior to magnetic ordering.