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Magnetic Properties of the Stoichiometric Laves Phase Compound in Cobalt-Titanium System*

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Abstract

It has been confirmed by X-ray diffraction and magnetic studies that the cubic Laves phase Co_2Ti exists in a composition range of less than one atomic percent around the stoichiometric composition. Magnetic measurements, made in the temperature range from 4.2° to 800°K, indicates that this cubic Laves phase compound is antiferromagnetic with the Néel temperature of 43°K. The reciprocal magnetic susceptibility vs. temperature curve in the paramagnetic state is strongly concave towards the temperature axis. The curve is described by a modified Curie-Weiss law, in which the effective magnetic moment of the cobalt atom is $0.45\mu_B$.

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