Influence of transition metal substitution on the low-field magnetic properties in the $Gd(Ni_{1-x}T_x)_3$ (T=Fe, Co) intermetallic compounds

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The low-field magnetic properties of polycrystalline $Gd(Ni_{1-x}T_x)_3$ (T = Fe, Co) intermetallic compounds are presented. The whole system crystallizes in the rhombohedral $PuNi_3$ type of crystal structure. The composition dependence of the Curie temperature T_C(x) is associated with the change in the number of 3d electrons. Moreover, the field cooled and zero field cooled (FC-ZFC) curves at low applied magnetic field are related to the anisotropy of T element. The saturation magnetic moment M_S(x) upon doping was estimated based on the hysteresis loops M(H). The values of T_C for several compounds were confirmed by electrical resistance measurements.