



Characterization of the Structural and Magnetic Properties of Nd₁₆Co_{76-x}Ru_xB Alloys

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The Nd₁₆Co_{76-x}Ru_xC₇B system has been investigated to assess the effect of boron-carbon combined addition on the ferromagnetic behavior of these intermetallic compounds. The results indicate that the addition of 1 at.% B favors the formation of the tetragonal magnetic phase 2:14:1 in these alloys. With the increase of the Ru concentration is observed an expansion of the lattice in the basal plane as well as a contraction along the c direction of the tetragonal unit cell. The Curie temperature decreases from 432 K at x = 6 to 421 K for x = 27,

whereas the saturation magnetization has a steep decrease. The highest TC value has been verified for the alloy with the largest c parameter, despite its a parameter is the smallest one. In comparison to isotypic borides and pure carbides, a loss of coercivity and remanence is observed.

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