

Title: The magnetocrystalline anisotropy in the Tb*TX* compounds

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Abstract: The subject of this work is the study of structural, magnetic and transport properties of the TbNi(Al,In) series to finding connections between magnetocrystalline anisotropy and lattice parameters of the structure of the Tb*TX* compounds. Polycrystalline TbNiAl_{1-x}In_x samples were prepared by melting. The phase and crystal structure analysis were provided on samples. We performed the measurements of the magnetization, susceptibility, specific heat, resistivity, low temperature X-ray diffraction and powder neutron diffraction. From the neutron diffraction data we refined lattice parameters and propagation vectors of the series. The main propagation is (000) and second weaker component has the propagation vector ($\frac{1}{2}$ 0 $\frac{1}{2}$). The change of the magnetocrystalline anisotropy from uniaxial to planar type occurs for compounds with x between 0.4 and 0.5.

Keywords: magnetization, X-ray and neutron diffraction, electrical resistivity.