

Magnetic properties of rapidly solidified $\text{Fe}_{61}\text{Co}_{10}\text{B}_{20}\text{Y}_{8-x}\text{W}_y\text{Pt}_x$ ($x = 1, 2$; $y = 0, 1$) bulk alloy

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In the literature there can be found reports for the rapidly cooled alloy consisting of Pt mainly in the form of thin ribbons. In this work, we present the effect a small quantity additive of W and Pt for the magnetic properties of massive two-phase alloys in the form of plates with a thickness of 0.5 mm. The observed phases in the alloys were: amorphous and crystalline, which participation depending on the alloy additives. Generally, it is assumed that alloys with the addition of Pt are characterized by a relatively high saturation magnetization and magnetocrystalline anisotropy, which is mainly influenced by the presence of crystalline phases FePt, Fe₃Pt, FePt₃. For the investigated alloys it was noted that the gradual introduction of W and Pt in place of the Y to alloy Fe₆₁Co₁₀B₂₀Y_{8-x}W_yPt_x increased the value of saturation magnetization (μ_0M_s) and on the reduction of the coercive field (H_c). On the basis of the XRD patterns analysis, it was found that the sample with the greatest content of the platinum, there are crystallites of the smallest size and the share of the α -Fe crystalline phase is much greater than for the other studied samples.