

ABSTRACT

A problem of the present invention is to provide a Ni-based sputtering target material that has a low magnetic permeability, is capable of affording a strong pass-through-flux, and has a high use efficiency in a magnetron sputtering method. In order to solve such a problem, there is provided a Ni-based sputtering target material including an $\text{Fe}_x\text{-Ni}_y\text{-Co}_z\text{-M}$ -based alloy, in which the alloy includes, as M elements, one or more M1 elements selected from W, Mo, Ta, Cr, V, and Nb at the total of 2 to 20 at.% and one or more M2 elements selected from Al, Ga, In, Si, Ge, Sn, Zr, Ti, Hf, B, Cu, P, C, and Ru at the total of 0 to 10 at.%; and the balance consists of Ni, one or two of Fe and Co, and unavoidable impurities; in which, assuming that $x + y + z = 100$ is satisfied, x is from 0 to 50, y is from 20 to 98, and z is from 0 to 60; in which the alloy has a microstructure containing an $\text{Fe}_\alpha\text{-Ni}_\beta\text{-Co}_\gamma$ phase; in which, assuming that $\alpha + \beta + \gamma = 100$ is satisfied, β is from 20 to 35 and γ is 30 or less; and in which the microstructure includes an M element incorporated into the $\text{Fe}_\alpha\text{-Ni}_\beta\text{-Co}_\gamma$ phase in a solid solution and/or includes an M element formed into a compound with at least one element of Fe, Ni, and Co.