

## Structure and magnetic properties of Fe(Mn)-Si-B-Nb-Cu alloys

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The aim of this work was to study the influence of niobium substitution by vanadium in  $\text{Fe}_{73.5}\text{Cu}_1\text{Nb}_{3-x}\text{V}_x\text{Si}_{13.5}\text{B}_9$  ( $x = 1.5, 3$ ) alloys on their structure and magnetic properties. Amorphous ribbons were prepared by melt spinning method. The structural evolution of the alloys after annealing treatment was investigated by the in-situ XRD experiments using synchrotron radiation performed at DESY Hamburg. Thermal analysis of the samples was performed by DTA method. DTA confirmed the influence of vanadium on crystallization temperature of nanocrystalline phase- $T_{x1}$  and crystallization of borides- $T_{x2}$ . The higher vanadium content lowers crystallization temperature  $T_{x1}$ ,  $T_{x2}$ . Magnetic measurements show the influence of vanadium content on magnetic properties (coercivity, Curie temperature, saturation magnetic induction, Hall effect) of both amorphous and nanocrystalline alloys, respectively.

← 13.4 cm →

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9.7 cm