Mössbauer study of the some intermetallic compounds $Fe_{80-x}Ni_xB_{20}$ (x = 0, 8, 16, 24, 28)

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Fe-based amorphous and nano-crystalline alloys were prepared by the melt-spinning technique and characterized by X-ray diffraction, magnetostatic and Mössbauer effect methods. The Mössbauer spectroscopy allows to study the local environments of the Fe atoms in the investigated $Fe_{80-x}Ni_xB_{20}$ (x = 0, 8, 16, 24, 28) compounds and showing the changes in the structure due to the changing of Ni addition. Combination of X-ray diffraction and Mössbauer spectroscopy results confirm formation of different phase complex including the α-Fe-Ni, γ-Fe-Ni, Fe_2B and Fe_3B in investigated materials. Magnetostatic measurements indicate on structural transformation around 700°C in compounds with x = 8 and 16.