In this work we use thermal analysis methods, X-ray diffraction and magnetization measurements to carry out a systematic study on amorphous magnetic materials. In this sense, as-quenched amorphous samples of Ni$_{40}$Fe$_{40}$P$_{14}$B$_6$ and Fe$_{76.5}$Cu$_1$Nb$_3$Si$_{13.5}$B$_6$ were used. We have interpreted the crystallization kinetics in terms of the Johnson/Mehl/Avrami (JMA) nucleation-growth model. X-ray diffraction data as function of temperature reveal that our samples consist of single phases of Fe-rich nanocrystals embedded in a residual amorphous phase. Magnetic measurements as function of temperature show a sharp decreases of the magnetization around 200 and 350°C to Ni$_{40}$Fe$_{40}$P$_{14}$B$_6$ and Fe$_{76.5}$Cu$_1$Nb$_3$Si$_{13.5}$B$_6$, respectively, likely related to the Curie temperatures. TGA and magnetization curves show additional increases in the high temperature region which are attributed to the growth of the Fe-rich magnetic phases.