Structure, microstructure and magnetic properties of the $Gd_{100-x}Sn_x$ alloys

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The present work on studies of structure, microstructure and magnetocaloric effect of binary $Gd_{100-x}Sn_x$ (where x= 5, 10, 15 and 20) alloys. The XRD, Mössbauer spectroscopy and SEM/EDX analysis confirmed biphasic structure built by Gd(Sn) and Gd_3Sn phases. The analysis of M vs. T curves revealed changes of the Curie point of recognized phases. The temperature dependences of magnetic entropy change revealed one minimum for the $Gd_{95}Sn_5$, $Gd_{85}Sn_{15}$and $Gd_{80}Sn_{20}$ alloys, two maxima were detected for the $Gd_{90}Sn_{10}$ alloy sample. The analysis of the exponent n confirmed biphasic structure of the $Gd_{90}Sn_{10}$ alloy sample.