LARGE MAGNETOCALORIC EFFECT IN NdNi$_4$Si COMPOUND

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On the basis of the thermodynamic approach, we report the magnetocaloric properties of the ternary ferromagnetic NdNi$_4$Si compound with magnetic phase transition temperature $T_C$ at 8 K, the saturated magnetic moment in $H = 9$ T equal $1.5\mu_B/f.u.$ at 4.2 K and crystallizing in hexagonal CaCu$_5$-type structure (P6/mmm space group). The magnetocaloric effect was calculated in terms of the isothermal magnetic entropy change $\Delta S_M$ as well as the adiabatic temperature change $\Delta T_{ad}$ using the heat capacity data. Within the second order phase transition large values of these parameters have been observed.

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