

Influence of substitution and milling on structural and magnetic properties of $\text{Sm}(\text{Ni}_{1-x}\text{Co}_x)_3$ alloys

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The effect of the substitution of nickel by cobalt on the crystal structure and magnetic properties in the $\text{Sm}(\text{Ni}_{1-x}\text{Co}_x)_3$ has been investigated. The studied compounds have been obtained by arc melting. The XRD studies showed that all of them occur in single phase. The magnetic measurements have been performed using the SQUID for bulk samples with $x=0.0, 0.1, 0.2$ as well as for the sample with $x=0.2$ which was milled to nanoparticles form. The magnetocaloric effect was calculated from isotherms for $\text{Sm}(\text{Ni}_{0.8}\text{Co}_{0.2})_3$ in bulk form and nanopowder. The substitution of nickel by cobalt caused a decrease of the magnetocaloric effect. Reduction of this effect was even greater for nanoparticles.