

# Magnetic hardening induced in $\text{RCo}_5$ ( $\text{R} = \text{Y}, \text{Gd}, \text{Sm}$ ) by short HEBM

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The paper is focused on the magnetic and structural properties of  $\text{RCo}_5$  ( $\text{R} = \text{Y}, \text{Gd}, \text{Sm}$ ) intermetallics fabricated by high energy ball - milling (HEBM). The investigated samples were first produced by arc-melting as bulk materials and then were milled for 1h in dimethylformamide with balls to powder ratio 10:1. The influence of the HEBM parameters on the microstructure was investigated by a variety of complementary measurement methods. The Rietveld refinement was performed to estimate the dependence of crystallite size and microstrain on type of sample. The hysteresis loops were recorded by SQUID magnetometer at 2 K and 300 K and at magnetic field up to  $\mu_0 H = 7$  T. The impact of short HEBM process is visible as the enhancement of coercivity and simultaneous reduction of the saturation magnetization.