THE MAGNETIC BEHAVIOUR OF $(Y_{1-x}Tb_x)_3Co_{11}B_4$ INTERMETALLIC COMPOUNDS

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The $R_3Co_{11}B_4$ compounds belong to $R_{n+1}Co_{3n+5}B_{2n}$ intermetallic systems.
The $R_3Co_{11}B_4$ borides crystallize in a hexagonal structure of $Ce_3Co_{11}B_4$ type having the space group $P6/mmm$. The composition dependencies of the lattice parameters in $(Y_{1-x}Tb_x)_3Co_{11}B_4$ compounds is linearly and opposite for a and c parameters. The magnetic properties of these compounds were investigated in the temperature range 5 - 1000 K and external fields up to 9 T. The $Y_3Co_{11}B_4$ compound is ferromagnetically ordered. For the compounds with $x > 0$ a ferrimagnetic ordering is evidenced. The Curie temperatures increase when yttrium is substituted by terbium, as a consequence of the increasing of the exchange interactions in the system. The magnetic behaviour of cobalt in the above system is analyzed.

9.7 cm

13.4 cm

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