MAGNETIC PROPERTIES OF $Dy_{11}Si_4In_6$

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9.7 cm

Intermetallic $Dy_{11}Si_4In_6$ crystallize in the tetragonal $Sm_{11}Ge_4In_6$-type crystal structure (space group I4/mmm) in which the rare earth atoms occupy four different sites. The ac and dc magnetic measurements suggest the complex magnetic properties. Below T_c = 52 K the ferromagnetic ordering is observed. With decrease temperature the change of the magnetic properties to the antiferro- ordering is observed. This result also from the magnetization curve measurement at 1.9 K With increase of the magnetic field the metamagnetic phase transition (H_{cr} = 6.4 kOe) with hysteresis is observed. Near the Curie temperature the magnetocaloric effect with the magnetic entropy $-\Delta S$ equal to 16.5 J/kg·K is observed. This value is large that observed in isostructural $R_{11}Ge_8In_2$ compounds [1].

[1] Y.Y. Janice Cheumg et al., Intermetallics: 10.1016/j.intermet. 2010.10.004.

13.4 cm

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