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WIDE TEMPERATURE RANGE MAGNETOCALORIC EFFECT IN DY 6.5 CO 2 SI 2

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We report that this alloy has been formed in three phases Dy 5 Si 3 , Dy 3 Co 2.2 Si 1.8 , and Dy 3 Co with four successive magnetic transitions. The important role in the magnetic behavior plays competing ferromagnetic and antiferromagnetic interactions in the alloy. The number of successive magnetic transitions together with competing magnetic interactions exhibit broadened magnetocaloric effect (MCE) peak with temperature width of ΔT = 83.8 and 93.2 K and consequently a large RC value of 474 and 739 J/kg, for a magnetic field change of 0–5 and 0–7 T, respectively.

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